Center for Drug
Evaluation and Research

Data Standards Strategy – Action Plan

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REVISION HISTORY

Version Number	Implemented By	Revision Date	Description of Change
1.0	CDER DSPB	February 21, 2013	Initial Document
1.1	CDER OpSC	July 29, 2013	Quarterly Update
1.2	CDER OpSC	October 23, 2013	Quarterly Update

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1.0 Introduction

In 2010, the Data Standards Program Board (DSPB) was chartered to serve as the governing body for the Center for Drug Evaluation and Research (CDER) data standards initiatives. In this capacity, the DSPB oversees a portfolio of projects to deliver to its internal and external stakeholders. This action plan outlines the data standards initiatives under the authority of the DSPB. These initiatives are directly aligned with the Data Standards Strategy (http://www.fda.gov/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/ucm249979.htm) and, where applicable, to the Prescription Drug User Fee Act (PDUFA) Information Technology (IT) Plan[1]. CDER's DSPB interfaces closely with standards teams in other centers, collaborating on projects and direction wherever feasible.

2.0 Purpose

This Action Plan is a quarterly update to internal and external stakeholders with an overview and progress update of current CDER data standards initiatives. The plan will continue to be updated quarterly to indicate progress of current projects as well as initiation of new projects.

3.0 Program Initiatives

The initiatives in the CDER DSPB portfolio align with the Center's data standards strategic goals. For purposes of this plan, the goals are categorized in following manner:

1. **Policy and Process** – Key activities to establish critical data standards-related policy or process (e.g., standards development and adoption, guidance development process and schedule, other specific guidance).
2. **Standards Development and Implementation** – Projects to identify, develop, test, and implement a standard to meet a regulatory need.
3. **Study Data Standards** – Projects that develop, test, or implement advancements in study data terminology and content standards.
4. **Research and Development** – Projects to assess a potential approach to meet a standards-related need without immediate intent to implement; these are to inform future direction.

A. Policy and Process

The Data Standards Strategy outlines policy and process initiatives to support CDER's data standards goals. The projects commenced to address the outlined policy and process initiatives are in **Table 1**. The progress arrows in the table indicate the current stage of progress for each project. **See Table 5** for a description of the stages.

Guidance and other public documents that set policy follow a development, clearance, and publication process at the draft stage and again after the review and disposition of public comments and publication of the final document. This process is aligned with Good Guidance

[1] PDUFA IT Plan currently being developed.

Practices (GGP) for issuing guidances as described in 21 Code of Federal Regulations (CFR) 10.115.

B. Standard Development and/or Implementation

CDER is implementing a consistent approach for its standards requirements, development and implementation projects. An overview of the development framework is provided in the Appendix. The framework is intended to be flexible enough to accommodate any number of standards needs, from simple vocabulary change requests, to changing existing standards, to implementation of new standards.

Further detail regarding the projects specific to study data are outlined in Section C. **Table 2** highlights current standards projects.

C. Study Data Standards

This section elaborates the Data Standard Project *Development* Stage for a study data standard. These projects are categorized separately from other data standards efforts because it is expected that most will be incremental enhancements to existing standards. For example, as discussed in the Data Standards Strategy document, it is expected that therapeutic area standards development will enhance existing "cross-cutting" Clinical Data Interchange Standards Consortium (CDISC) domains (e.g., demographics, adverse events, vital signs) and potentially add small therapeutic area (TA) -specific sets of elements and relationships. The Appendix describes the process overview and the FDA's roles/activities in the development of study data standards.

Most current study data standard development projects are led by organizations external to FDA (e.g., CDISC, Critical Path Institute, Duke Clinical Research Institute (DCRI)). This enables CDER to meet one of its strategic goals: to support open, consensus-based data standards development. To ensure that those standards can be implemented for regulatory review purposes, CDER participates at critical junctures throughout the development phase to identify scope and requirements, provide subject matter expertise and feedback, and to perform acceptance and implementation testing. When a standard is available for public release from the relevant Standards Development Organization (SDO) it is available for use but is not necessarily adopted by FDA. CDER will perform testing to determine whether the released standard meets regulatory review needs and is suitable for regulatory adoption. After any issues are addressed, CDER will update study data guidance as necessary and publish draft guidance for public comment.

While this approach relies on the successful performance of these external organizations, CDER is not a passive stakeholder and participates on many levels to influence project scope (e.g., through requirements development and expert reviews), promote timely progress, and prioritize projects through participation in steering groups (e.g., Coalition for the Advancement of Standards and Therapies (CFAST[2]) and leadership support in relevant HL7 working groups.

[2] http://www.cdisc.org/therapeutic

A list and status of development projects addressing therapeutic areas are available online at: http://www.fda.gov/Drugs/DevelopmentApprovalProcess/FormsSubmissionRequirements/ElectronicSubmissions/ucm287408.htm. **Table 3** Study Data Standards Development (below) highlights related projects that are not on the therapeutic area standards development list.

D. Research and Development

The process for research and development initiatives is similar to that of other data standards development efforts. To ensure that CDER's standardization needs are met in the long term, research and development initiatives are undertaken to assess new approaches without immediate intent to implement, but rather to inform future direction.

Over the past few years, CDER has increased its support for standardized study data submissions using CDISC standards, and will continue to do so in the foreseeable future. On November 5, 2012, FDA coordinated the Solutions for Study Data Exchange Standards Meeting to solicit input from industry, technology vendors, and other members of the public regarding the advantages and disadvantages of current and emerging solutions for the exchange of regulatory study data. Based on public input, FDA has initiated a project to capture and analyze both submission and study life-cycle exchange requirements. The results will inform further pilot activities in this area.

4.0 Risk Mitigation

Quarterly updates to the portfolio will ensure that stakeholders are kept informed of the status of each project. The risks listed below are monitored and mitigations applied on a continual basis to manage impacts to the portfolio.

4.1 Risks

1. The required FDA staff and support resources are not available as expected, or severely limited;
2. A reduced budget scenario occurs;
3. Required resources from external stakeholders are not available or severely limited;
4. External environmental factors (e.g., regulatory, legislative, economic, technological) arise that directly impact one or more key programs.

4.2 Mitigation

1. Projects will not be initiated unless there is sufficient commitment (e.g., budget and staffing) to meet the project's planned objectives.
2. Projects that are not resourced adequately, by both internal and external parties, will be eliminated or delayed.
3. Projects will include planned decision points in the overall schedule with escalation oversight where necessary to address issues. Decision points will be used to adjust project scope and/or direction to continue to progress within identified constraints.

Table 1. Policy and Process

Project Title	Center	Project Description	Output and Estimated Timeframes	Stage			
				Initiation	Development	Clearance	Publication
*Guidance on Electronic Submission of Applications (eCTD)	CDER CBER	Issue draft Guidance specifying the requirement of electronic submission of applications. Comment period closed for draft released January 3, 2013.	Draft guidance to publish in the Federal Register for public comment in FY2014			2nd draft	
*Guidance on Electronic Standardized Study Data (eStudy)	CDER CBER	Issue draft Guidance to industry specifying requirements for electronic data standards under the Food and Drug Administration Safety and Innovation Act (FDASIA).	Draft guidance to publish in the Federal Register for public comment in FY2014			2nd draft	
*Study Data Standards Technical Conformance Guidance	CDER CBER	Conduct a review of existing Study Data Standards technical conformance guidance (e.g., Study Data Specification, Common Issues Document, voluntary legacy data conversion traceability), and define an approach for public release of the guidances that includes a formal notification (e.g., Federal Register Notice of Availability) and public comment period.	Draft document to publish in the Federal Register for public comment in FY2014		draft		
Therapeutic Area Standards Initiative Project Plan	CDER CBER	Create and publish a TA Therapeutic Area Standards Initiative Project Plan.	Draft TA Project Plan to publish in the Federal Register for public comment in FY2014			draft	
Guidance for Industry on Electronic Source Data in Clinical Investigations (eSource)	CDER	Address comments received and publish final guidance. This guidance is to sponsors, contract research organizations (CROs), data management centers, clinical investigators, and others involved in capturing, reviewing, and archiving electronic source data in FDA-regulated clinical investigations. The guidance promotes capturing source data in electronic form, and it is intended to assist	Final published September 18, 2013 (Docket ID: FDA-2010-D-0643)			final	

Project Title	Center	Project Description	Output and Estimated Timeframes	Stage			
				Initiation	Development	Clearance	Publication
		in ensuring the reliability, quality, integrity, and traceability of electronic source data.					
Quality Data and Other Areas of Standardization	CDER	Conduct an assessment and develop a strategy document/plan to outline data needs and uses for non-clinical data areas (e.g., Chemistry, Manufacturing, and Controls (CMC), product, facility). This strategy may lead to other projects (for guidance or standards development) and is linked to other efforts outlined in this plan (e.g., Identification of Medicinal Products (IDMP) Implementation).	Define scope to support assessment needs. FY2013 Q4 (On-Hold)		draft		
Draft Guidance for Industry; Providing Regulatory Submissions in Electronic Format--Submission of Manufacturing Establishment Information	CDER	Issue draft Guidance in FY 2013 to request voluntary submission of electronic information about manufacturing establishments. Guidance is collaborative effort with CBER; working group involves CDER/OC, ONDQA (Office of New Drug Quality Assessment), OGD (Office of Generic Drugs), OBP (Office of Biotechnology), ORP (Office of Regulatory Policy), OBI; CBER	Draft guidance ready to publish in the Federal Register for public comment in FY2014 Q1			draft	
Draft Guidance for Industry Providing Submissions in Electronic Format-Summary Level Clinical Site Data for CDER's Inspection Planning;	CDER	Provide guidance to industry on site-level standardized data elements used in the selection clinical sites and/or facilities for inspection as part of a regulatory application or supplement.	Comments received from December 2012 draft release are being addressed and near completion		2nd draft		

*At this time FDA has not issued final guidance on the requirement for standardized study data or electronic submissions. Currently, FDA is revising the draft guidances to be in accordance with section 745A(a) of the Food Drug and Cosmetic Act which provides for the requirement of electronic submissions in specified formats. FDA anticipates that the revised draft guidances, as well as the draft Study Data Technical Conformance Guide will be published, for comment, in FY2014.

Table 2. Standard Development

Project Title	Center	Project Description	Output and Estimated Timeframes	Stage						
				Req Definition	Alt Analysis	Development	Testing	Adoption	Implementation	FRN[3]/ Guidance
eCTD v4.0 Project	CDER CBER	FDA currently uses electronic Common Technical Document (eCTD) version 3.2. This project is to support the development, testing, and adoption of the next major version of the eCTD (version 4) which includes two-way communication.	HL7 Regulated Product Submission (RPS) Normative Ballot FY2013 Q4, Ballot reconciliation activities, FY2014 Q2							
ISO IDMP Implementation	CDER/ CBER	Implement International Organization for Standardization (ISO) Identification of Medicinal Products (IDMP) standards with reliable and robust repositories and processes to support efficient, consistent, and timely decision making in the regulation of medicinal product throughout the product development lifecycle.	ISO complainant Substance Registration System (SRS) Pilot to start in FY2014 Q1							
Product Dictionary	CDER/ CBER	With the release of the FDA Adverse Event Reporting System (FAERS) in FY2013 Q1, the initial implementation of the product dictionary is complete. The Centers are now focusing on the next version of the product dictionary that will leverage an ongoing CDER Master Data Management effort to create an ISO IDMP compliant Product Dictionary. This project is current in the planning stages.	Contract awarded FY2014 Q1. Currently in the planning phase							
Generic Drug Review Data Standards and Process	CDER	Assess current data standards, flow, and associated processes for Office of Generic Drugs. Establish and implement recommendations to optimize future state processes to meet Generic Drug User Fee Act (GDUFA)	Project scope and plan completed and approved FY2014 Q1. Current State							

[3] Federal Register Notice (FRN)

Project Title	Center	Project Description	Output and Estimated Timeframes	Stage						
				Req Definition	Alt Analysis	Development	Testing	Adoption	Implementation	FRN[3]/ Guidance
Optimization		requirements	assessment underway							
ICSR R3 (E2B R3) Implementation Assessment and Planning	CDER	Assess Individual Case Safety Report (ICSR) Release 3 (R3) implementation requirements and considerations; develop implementation plan based on assessment findings.	Draft FDA E2B (R3) guidance[4] and technical specifications ready to publish in the Federal Register for public comment in FY2014 Q1 Project pilot to review sample E2B(R3) XML files scheduled for FY2014 Q2		draft					
Data Fit Project	CDER	Develop an advanced data quality and conformance checking program (i.e., Data Fit service) for use by CDER to evaluate and report on clinical trial data that is submitted in standard format in support of registration applications.	Conducting program testing, expected completion FY2014 Q1		draft					

[4] CBER vaccine program has completed various activities including Electronic Vaccine Adverse Event Reporting System (eVAERS) guidance and technical specification, Phase I parser development and testing, and Electronic Submissions Gateway (ESG) enhancements to support ICSR exchange with Centers for Disease Control and Prevention (CDC). The vaccine program is collaborating with the overarching CBER/CDER ICSR(R3) implementation but progressing in different pace.

Table 3. Study Data Standard Development

Project Title	Center	Project Description	Output and Estimated Timeframes	Stage						
				Req Definition	Initiation	Development	Testing	Adoption	Implementation	FRN/Guidance
SEND Cardiovascular and Respiratory Safety Pharmacology Pilot	CDER	Pilot the Standard for Exchange of Nonclinical Data (SEND) data standard for cardiovascular and respiratory safety pharmacology study types.	Pilot completion estimated FY2014 Q2							
TA Requirements Gathering & Small Clinical Information Models Development	CDER	Building on the work completed in the initial pilot to capture data requirements for review of clinical efficacy and developing models for five (5) TAs, a project was initiated in September 2013 to expand requirements collection for up to 12 TAs.	Requirements and models completed in FY2013 Q4 for five (5) TAs piloted Project initiated September 2013 to address 12 TAs							
Study Data Testing Methodology	CDER	Define considerations for testing approaches, types of test efforts, and appropriate measurement criteria to enable FDA to assess standards in the review environment.	Project initiated September 2013. Project plan expected FY2014 Q1							
Impact Assessment and Transition Planning for Meaningful Use Standards	CDER	Assess impact of adopting and harmonizing Office of National Coordinator's (ONC's) Meaningful Use standards with FDA existing standards. Develop a transition plan that addresses the preparations, education, processes and change management required to successfully implement the new and evolving standards and processes that impact CDER's	Impact Assessment Report and Transition Plan Estimated completion FY2014 Q4							

Project Title	Center	Project Description	Output and Estimated Timeframes	Stage						
				Req Definition	Initiation	Development	Testing	Adoption	Implementation	FRN/Guidance
		regulated clinical research.								

Table 4. Research and Development

Project Title	Center	Project Description	Output and Estimated Timeframes
HL7 Study Data Standards Project (Research and Development)	CDER	Conduct a proof of concept (POC) and test the use of HL7 v.3 xml messages and/or documents (e.g., Clinical Document Architecture (CDA)) as a possible exchange method for certain use cases (e.g. patient narrative, clinical investigator information, study design, subject data). The project includes drafting implementation guides and conducting testing.	Phase 2 – Testing Structured Protocol Information complete. Test report being finalized.
Submission and Exchange Standards Analysis	CDER CBER	Document a pathway for the replacement of SAS XPORT files used for transport of CDISC content with a more robust and flexible transport mechanism.	Project to draft requirements describing data transport needs completed. Publish Federal Register Notice to announce evaluation of transport mechanism in FY2014

Table 5. Policy and Process Project Stages

Policy and Process Project Stage	Center	Stage Description
Initiation	CDER CBER	The business need is articulated and a work plan for the project is developed.
Development	CDER CBER	During this stage the proposed new or changed policy/process is developed and a draft of the new/revised policy or process is created and internally reviewed by subject matter experts. Once complete, the document will begin the clearance process.
Clearance	CDER CBER	This is a formal process whereby a guidance document is reviewed for consistency with CDER policy, Good Guidance Practices, format, style, clarity and content. The review is conducted by leadership at the office and center levels prior to submission and review at the Agency level and subsequent publication.
Publication	CDER CBER	For guidance and other external documents having policy impact, a notice of availability is published in the Federal Register and the document is made accessible to internal and external stakeholders. For internal processes, publication is made as a CDER Manual of Policies and Procedures (MaPPs) if appropriate.

Table 6. Standard Development Project Stage and Description

Rows highlighted in yellow* are processes owned by Standards Development Organizations, other rows are CDER owned process. As discussed in the next section, there is variation in all data standards projects so not all processes are needed for every project.

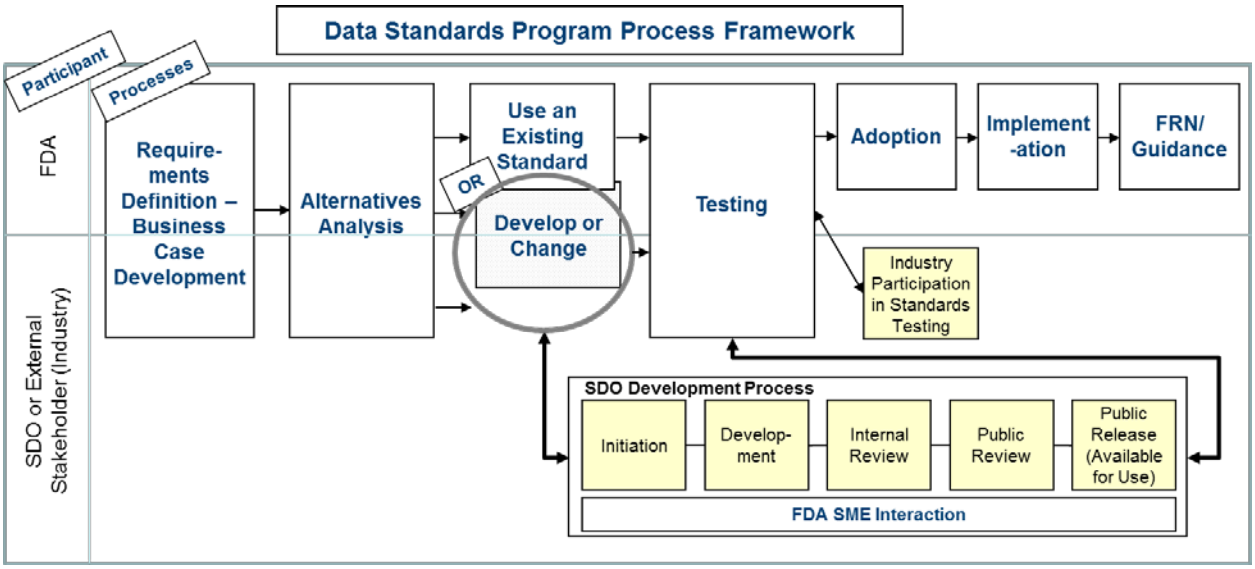
Data Standard Project Stage	Stage Description
Requirements Definition - Business Case Development	A business case is developed that can include a description of the data standard need, impact on tools, processes, and information technology infrastructure, high-level concept of operations, future state benefits, and high level requirements. For study data-related projects, FDA subject matter experts and document resources (e.g., case report forms, guidance documents) are used to develop requirements for study data standards development.
Alternatives Analysis	If needed, FDA can conduct alternative analyses to assess options and recommendations for addressing the data standards need defined in the business case. Stakeholder input is a critical part of this effort and could include a request for public comment or input in addition to planned communications (as outlined in the Communication Plan).

Data Standard Project Stage	Stage Description
Alternatives Analysis - Pilot	If needed, FDA would conduct a single option pilot to further assess the feasibility of a data standards alternative or a competitive pilot to compare more than one identified alternative that meets the business need.
Initiation*	The SDO, grantee, or other lead group working with the FDA and other subject matter experts defines the project scope (e.g., what is needed for regulatory review decision making), develops a charter to define the project and ensure available resources, develops a plan, and conducts a kick off of the project.
Development*	The SDO, grantee, or other lead group conducts an iterative process of data element identification (e.g., elements need to describe the study primary endpoint), definition, validation, and conducts a review with defined expert groups. FDA's subject matter experts participate throughout the development phase. A key output is an implementation guide for the study data standard.
Internal Review*	During this stage, the lead group conducts an internal review to ensure readiness for the public review period.
Public Review*	The lead group facilitates a public review comment period. Comments are addressed per the lead group's process.
Public Release*	An initial release of the study data standard is released for public use.
Testing	A project may be required to test that all identified factors are assessed (e.g., scale, impact, suitability for FDA regulatory review needs, compatibility with FDA infrastructure) and that all policy, regulatory, guidance, and technical specification needs are identified. For study data, FDA may use converted or sample data sets to test the study data standard to simulate regulatory review decision making. Having the business rules and/or conformance checks available for a new or updated standard at time of SDO release will be important to FDA's testing efforts.
Adoption	If needed, policy, regulatory, guidance, and technical specification needs identified for a given data standards change are addressed to support implementation.
Implementation	The data standard change is being implemented into the FDA environment. This phase includes all the steps to make this part of the regulatory review process.
Federal Register Notice (FRN)/Guidance	FDA will issue final guidance if the use of a new standard is required.

Appendix A. Standard Development and/or Implementation Project Stage Description

This section provides more detail on the processes utilized by the projects described in Section 3.0B and 3.0C. **Figure 1** illustrates the process framework CDER is implementing for its data standards identification, development and implementation projects. Depending on the scope, projects will proceed through the appropriate phases (i.e., not every project will proceed through all of the listed processes). For example, projects only capturing CDER's TA requirements will not proceed through Testing, Adoption, and Implementation. Those would be addressed in a subsequent project. Most processes in this framework require collaboration with external stakeholders, these are depicted as process boxes that cross between the FDA and SDO or External Stakeholder participant rows.

Figure 1. Data Standards Development Project High Level Process



Use of this approach ensures that identified data standards needs are articulated, reviewed and approved internally, external stakeholders are engaged, adequate testing is conducted, and that roll out is planned. The figure also illustrates the general development process utilized by external SDOs (shown with yellow boxes). As discussed in Section 3.0C, these projects are led by groups external to FDA (e.g., CDISC, Critical Path Institute) and FDA participates throughout the process to provide subject matter expertise. **Table 6** summarizes the definitions for each of the process stages in the framework.